FRDA Research Memo

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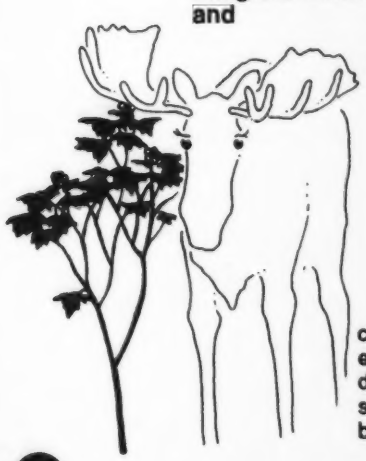
Providing Fish and Wildlife Information from New and Current FRDA Research - Project No. 1.39

With over a half-million hectares of forest land treated by spring 1988, the Canada-British Columbia FRDA Backlog Program has the potential to profoundly affect the habitat of wildlife and fish over large areas of British Columbia. Throughout B.C., fish and wildlife managers, biologists, trappers, and many other interested individuals have expressed concerns about the impacts of backlog reforestation treatments on wildlife and fish. Silvicultural activities carried out to encourage conifer growth on backlog lands are often in direct conflict with wildlife and fisheries management objectives. Practises such as mechanical site preparation, prescribed burning, herbicide use, fertilization, and pest control can affect the food supplies, cover, and shelter used by wildlife and fish. These impacts, although potentially severe, are poorly understood.

Projects carried out through the Extension, Demonstration, Research and Development (E,D,R & D) sub-program of FRDA provide an opportunity to learn more about the effects of silvicultural activities on fish and wildlife resources. Recognizing this, the Northern Interior Technical Advisory Committee (NITAC) hired wildlife biologists Susan Stevenson and David Hatler to recommend how research projects initiated by NITAC could best provide data on the impact of silvicultural treatment on wildlife and fish.

The objectives of their FRDA project were;

1. **to review existing NITAC projects for their potential to provide information on impacts on wildlife and fish and their habitat;**
2. **to recommend modifications to those projects that offer the greatest opportunities to integrate wildlife and fisheries concerns; and**



3. **to prepare a protocol (a set of specific guidelines) for measuring wildlife/fisheries response to silvicultural treatments for use in future silvicultural research projects.**

Each wildlife species or species group responds differently to environmental conditions, and it is difficult to generalize the effects of silvicultural practice. However, because NITAC projects all relate in some way to backlog reforestation, the wildlife species most likely to be affected are those that depend on the earliest stages of forest succession following disturbance. These include a wide variety of rodents, furbearers, and birds as well as large mammals such as moose, mule and white-tailed deer, elk, and black bears. **For such species, the major impact of silvicultural activities, regardless of method, is the reduction in extent and duration of the deciduous-dominated early stages of forest growth.** Additional concerns exist about the direct and indirect effects of silvicultural chemicals on wildlife health, but little or no information about these impacts is available.

The impacts of silvicultural activities on fish habitat tend to be minor compared to road building and forest harvesting practises. Treatments that accelerate soil erosion or alter streamside vegetation are likely to have the greatest effect. Glyphosate and hexazinone, the two most commonly used forest herbicides in the norther interior, have relatively low toxicity to aquatic organisms. With correct handling and observance of pesticide-free zones, use of registered forest herbicides should not be of direct concern to fish. Movement of these chemicals in the environment is being addressed by FRDA Projects 1.21, 2.11, and 2.26 (described in FRDA Memos 016, 023, and 024).

The protocol developed by Stevenson and Hatler has three levels of assessment:

Level 1: A minimum assessment of vegetation structure, species composition, and the degree of soil disturbance. These assessments can be carried out by project personnel on existing measurement plots. Recommended for projects that do not warrant intensive data collection.

Level 2: A detailed assessment of vegetation structure, species composition, site and soil characteristics, including documentation of prescribed fire impacts and herbicide/fertilizer applications. These assessments follow new guidelines prepared by the Ministry of Environment and require special measurement plots to assess pre- and post-treatment conditions. Recommended for routine use on any new experimental projects where wildlife habitat is a concern. Relatively large treatment areas are required.

Level 3: Direct monitoring of the nature and extent of wildlife use within treated and control areas. Field contacts, trapping, and wildlife sign are used to quantify animal use. These assessments, still in a developmental stage, will require individualized survey methodologies prepared in cooperation with wildlife specialists and statisticians.

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Stevenson and Hatler reviewed seventeen NITAC projects, each ongoing as of October 1987. Of these, the following 3 were recommended for Level 1 assessments:

1.3 Herbicide screening trials for *Calamagrostis* and *Populus* control

1.17 Treatment development for rehabilitating ESSF backlog brushfields

1.18 Development of a methodology to determine factors influencing free-growing status for boreal and subboreal plantations

Two projects were recommended for Level 2 assessments:

1.23 Herbicide rate and timing trials for site preparation and conifer release

1.27 Evaluation of vegetative competition in SBS hardwood stands

Two projects are being considered for Level 3 assessments:

1.13 Assessment of treatment options and effects in rehabilitating dense, suppressed lodgepole pine stands

1.34 Impact of glyphosate use on small mammal populations in the SBS

Stevenson and Hatler recommended that integrated resource management be given high priority within the NITAC extension program, and that interpretation of wildlife/fisheries impacts be included at demonstration sites. They also recommended that a wildlife biologist be hired to review and interpret all wildlife/fisheries-related results of NITAC research in the final year of FRDA.

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